

Materials Science

APPLIED SURFACE CHEMISTRY OF FEPT NANOPARTICLES

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In this study we investigated four methods for the attachment of thiols to the surface of FePt nanoparticles. The XPS analysis shows the existence of 1-dodecanethiol exchanged at the surface as the S 2p peak with a binding energy between 163-164 eV. The particle presence was confirmed by XRD and AGM analysis, with particle sizes ranging from 2-4 nm, before and after thiol exchange. The stability of the particle composition confirmed by EDAX, to be 45% Fe:55% Pt. We also propose here a synthesis for the binding streptavidin to the surface of FePt nanoparticles using dithiolbis succinamide propionate (DSP). Preliminary XPS data confirms the presence of streptavidin in thin films of the product, as well as XRD and AGM confirmations of the presence of FePt nanoparticles.